Opportunities for Forest Finance: Compliance and Voluntary Markets

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Key Words

Forest, carbon, credit, voluntary, compliance, market, international carbon finance.

Abstract

The implementation of funded afforestation, reforestation, sustainable forest management and avoided deforestation projects needs to be increased. Implementation of such projects has the potential to deliver ecological benefits, social benefits and a means for reducing global green house gas emissions. International and national carbon markets have led to an increase in funding opportunities available for forest carbon related projects. Carbon credits have the potential to deliver desirable environmental outcomes along with a source of income to achieve such outcomes. There are two types of markets creating carbon credits: compliance and voluntary markets. While voluntary markets are responsible for the creating the majority of forest carbon credits the scientific legitimacy of credits created under such regimes has been called into question. In comparison compliance carbon markets have attempted to address a number of issues such as permanence, leakage, double counting and additionality which in turn had led to the development of complex reporting accounting methodologies resulting in lower investment levels.

Introduction

Climate change has gained international and domestic status as a serious political issue. The United Nations climate change regulatory framework was designed to provide parties with flexibility in methods of reducing their green house gas emissions. This flexibility led to the creation of a number of market-based instruments (as oppose to traditional command and control type regulation). These market based instruments encourage investment in practices which lower green house gas emissions. The actions performed by forests in reducing green house gas emissions are included within these market based instruments. Such mechanisms therefore have the potential to channel investment from climate change mitigation and adaptation activities to investment in forest projects.

At the international level, there are two forms of carbon markets: those referred to as compliance markets and those referred to as voluntary markets. Compliance markets are those markets operating under Kyoto regulation such as the European Union Emission Trading Scheme. While voluntary markets are those markets operating outside this framework such as the Chicago Climate Change Exchange.[1] Both of these markets have the potential to drive investment in sustainable forest use and management projects. This paper will identify the market mechanisms of both compliance and voluntary markets of relevance to forest investment. It will then examine the technical and policy barriers preventing further investment in forest projects funded through climate change investment. Climate change investment in this paper will be defined to mean investment that is made in attempting to

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[1] Katherine Hamilton et al, *Fortifying the Foundation: State of the Voluntary Carbon Markets 2009* (Ecosystems Market Place) 2009.

mitigate or adapt to climate change made as a result of regulation (compliance frameworks) or made voluntarily.

Global compliance carbon markets are experiencing a period of growth despite factors such as the global financial crisis and policy uncertainty post 2012. In 2008, the global compliance climate market exceeded $100 billion, which was a significant increase from 2007 figures in which the market was valued at $64 billion.[2] The voluntary carbon market was valued at $705 million in 2008 which again was a significant growth from the 2007 figure of $335 million.[3] The compliance market is currently larger than the voluntary market. However the level of economic investment in forest related carbon activities is much more significant in voluntary markets compared with investments made in compliance markets. 73% or 15MtCo2 of forest carbon investments have occurred as a result of voluntary carbon markets.[4]

While investment in forest carbon projects is more significant in economic terms in voluntary markets – investments in forest related activities only account for 3% of all project activities (1% avoided deforestation, 1% afforestation/reforestation and 1% sustainable forest management).[5] Investments in forest carbon projects are seen as cheaper alternatives to reducing global GHG emissions compared with investments required to achieve the same results in the energy sector. An investment of $20 billion could cut global emissions by 0.5GT C.[6] This realisation along with an existing global interest in protecting old growth forest has sparked considerable interest in the advancement of global policy on paying countries for avoided deforestation (known as the REDD mechanism – Reduced Emissions from Deforestation and Degradation). This paper seeks to explore 2 issues:

- Why do voluntary markets have more investment in forest projects then compliance markets?
- What are the challenges/ barriers preventing increased investment in forest projects under compliance and voluntary markets?

This research builds on existing literature which examines the methodological and equity issues associated with designing and implementing internationally funded forest projects in developing countries. There is a growing abundance of literature discussing methodology related issues for REDD and REDD plus.[7] This literature is of relevance to all investments arising in forests as a result of international carbon markets. This is because the same issues are present in all forest investment projects regardless of the source of funding and its requirements. REDD has attracted more attention in the literature as it first international forest instrument which promises to deliver improved forest outcomes with a source of funding to do so.

Blom et al, describe the transition of the concept of REDD into REDD-Plus succinctly:

[2] Nina Kozlecka and Julien Paulou, *Carbon Funds Outlook*, ICF International (2009), 7.
[3] Hamilton, above n1, iii.
[4] Katherine Hamilton, Unna Chokkalingham and Maria Bendana, *State of the Forest Carbon Markets 2009: Taking Root and Branching Out*, Ecosystem Marketplace (2010), 3.
[5] Hamilton, above n1, iv.
[6] Alan Grainger et al, 'Biodiversity and REDD at Copenhagen' (19) 21 *Current Biology* 974, 975.
[7] Bruce Campbell, 'Beyond Copenhagen: REDD+, agriculture, adaption strategies and poverty' (2010) 19 *Global Environmental Change* 397 discusses the advantages that a REDD+ mechanism could deliver for alleviating poverty, improving governance, conserving biodiversity and providing other environmental services.

> REDD as originally intended to incentivise reduced carbon emissions from deforestation and forest degradation. REDD-plus is seen as providing incentives for increases in carbon stocks and allows for emissions reduction credits from a wider array of forest management practices.[8]

Ghazoul et al identify the following issues as key challenges facing REDD implementation: ethical dilemmas, additionality, system leakages, permanence, national sovereignty and native land rights, equity and crashing carbon market.[9] Griffiths report highlights the importance of free, prior and informed consent as a foundational requirement for any international forest carbon investments in areas with community forest interests.[10] These same issues arise in the creation of any environmental offset schemes[11] and the resolution of such issues is crucial in determining the long term viability and environmental integrity of such schemes.[12]

Good forest governance is also identified as a crucial requirement in order to foster international carbon investment in forest projects. Phelps et al identified good forest governance arrangements as the crucial factor when deciding upon location for REDD investment.[13] Good forest governance requires government inclusiveness, accountability, participation of civil society, fair and clean tenure rights, legal clarity and control, inter-sectoral linkages, effective delegation among government levels and provisions of adequate resources for managers. In relation to REDD investment the existence of a strong legal framework, tenure clarity and domestic stakeholder engagement are seen as the important factors to provide investor confidence. It is suggested that these factors are so significant for REDD investors that investments are likely to be higher in countries with stronger governance capacities and lower carbon values over projects in countries with high carbon values and low governance capabilities. [14]

Another factor identified as being crucial from an investor's perspective is the development of risk mitigation and risk transfer clauses within forest carbon frameworks.[15] Buyers will generally be more interested in low-risk projects. Risk in such projects is usually defined and transferred within contractual liability provisions and in the context of REDD risk is associated with the non-permanence of emissions reduction and the concept of leakage. The more liability taken on by a seller the more attractive the credits become to a buyer. More attractive credits will fetch higher prices. The concept of risk mitigation highlights the competing interests and perspectives prevalent in international forest carbon interests. Such interests include those of the local community, those concerned with environmental integrity and those concerned with a secure and low-risk economic investment.

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[8] Benjamin Blom, Terry Sunderland and Daniel Murdiyarso, 'Getting REDD to wok: lessons learned from integrated conservation and development projects' (2010) 13 *Environmental Science and Policy*, 164, 165.

[9] Jaboury Ghazoul et al, 'REDD: a reckoning of environment and development implications' *Trends in Ecology and Evolution* (In Press).

[10] Tom Griffiths, *Seeing 'REDD'? Forests, climate change mitigation and the rights of indigenous peoples and local communities,* Forest Peoples Programme *(*2008), 27.

[11] In the context of environmental offsetting and methodology issues see Rowena Maguire, 'Legal Issues in the Design and Implementation of Environmental Offset and Environmental Trading Frameworks' (2008-2009) 14 (64) *Queensland Environmental Practice Reporter*, 53.

[12] For a perspective on the forest methodology issues arising under the Clean Development Mechanism see Joyotee Smith and Grahame Applegate, ' Could payments for forest carbon contribute to improved tropical forest management?' (2004) 6 *Forest Policy and Economics*, 153.

[13] J Phelps et al, 'What makes a 'REDD' country?' (2010) 20 *Global Environmental Change*, 322.

[14] Ibid.

[15] Meridian Institute, *Fostering Carbon Markets Investments in REDD: Final Report*, ICF International (2009), 5.

Similarly, a body of literature has emerged examining the impact of international forest instruments on local communities and the impact upon their access and use rights as a result of such schemes.[16] The concept of environmental justice provides a theoretical platform for arguing for a moral and ethical approach to be adopted when developing international forest instruments.[17] within the literature which argue that there is moral obligation on the part of the global community to design REDD in way that is equitable for poor, forest-dwelling communities.[18] Experience from implementing other international forest projects suggests that the interests of forest-dependent communities such as short-term livelihood improvements are not always compatible with the long term objectives of forest conservation.[19]

Smith and Scherr find that community based forest projects generated under the clean development mechanism such as agroforestry, small –scale plantations, community forest rehabilitation and multiple-use forest management have the highest potential for delivering benefits to local people. While it is found that large–scale industrial plantations and strict forest protection pose risks for continued community access to land and traditional use rights.[20] This again demonstrates the competing values and interests associated with international forest carbon instruments.

Compliance Markets

The international obligations underpinning compliance markets arise from the United Nations Framework Convention on Climate Change and the Kyoto Protocol. In terms of forestry the following instruments are relevant:

- The United Nations Framework Convention on Climate Change;
- The Kyoto Protocol and associated instruments
    - Clean Development Mechanism guidelines
    - Land Use, Land –Use Change and Forestry guidelines
- Reduced Emissions from Deforestation and Degradation Instrument

<u>The United Nations Framework Convention on Climate Change (UNFCCC)</u>

The UNFCCC does not place any specific obligations on countries. Instead it lays down the foundational governance structure for the international climate change regime. This includes creating key principles and broad commitments and creating a number of technical and administrative bodies to implement the convention. The overarching objective of the Convention is found in article 2 and requires

> "the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropocentric interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt

[16] Simone Lovera et al, *The hottest REDD issues: Rights, equity, development, deforestation and Governance by Indigenous People and Local Communities*, Commission on Environmental, Economic and Social Policies of the IUCN, (2009).
[17] Environmental justice is a concept which requires consideration of the benefits and burdens of an environmental activity on the population affected by the implementation of the project. On the general concept of environmental justice see Klaus Bosselman, *The Principle of Sustainability: Transforming Law and Governance*, (2008).
[18] Blom et al, above n6, 166.
[19] Blom et al, above n 6, 166.
[20] Joyotee Smith and Sara Scherr, 'Capturing the Value of Forest Carbon for Local Livelihoods' (2003) 31 (12) *World Development*, 2143, 2156.

> naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a suitable manner"

Article 4 of the convention creates an obligation in relation to forest areas. Forests are recognised within this article for their 'sink value' that is for their ability to store carbon. The article does not specify how forests are to be managed rather just identifying the role that all sink processes play in lowering greenhouse gas emissions. The article requires parties to

> "promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans, as well as other terrestrial coastal and marine ecosystems".

Forest-dependent developing countries are also given special recognition under the Convention. Article 4 (8) (c) requires the parties to consider the impact of the Convention's obligations on developing countries with forested areas. It encourages funding, insurance and technology transfer to be given to these countries. The reasoning underlying this obligation would be the otherwise unfair burden that forest-dependent developing countries would face in addressing concerns related to climate change. It should be restated at this point that developing countries do not have binding commitments under the Convention. This Article is merely recognising the unfair burden that forest dependent developing countries may face in future initiatives to combat climate change.

Article 11 of the Convention directs the conference of parties (the body charged with overseeing the implementation of the convention) to create a financial mechanism to assist with implementing activities reducing green house gas emissions. In practice the financial mechanism has taken the form of market regulation. Market regulation places an economic value upon environmental services and creates a framework in which this environmental value can be traded.

The Kyoto Protocol

The Kyoto Protocol is the instrument which establishes international commitments concerning climate change by setting binding individual targets to member countries. Implementation of the Protocol affects most major sectors of the global economy.[21] For this reason, the Protocol is thought to be the most far-reaching instrument in existence, creating enforceable obligations geared towards achieving environmental and sustainability objectives. Article 3 of the Protocol sets a specific target for the first operational period of the Protocol. The first operational (commitment) period is from 2008-2012.

The overall goal of the Protocol is to reduce developed countries' emissions by 5.2% from 1990 levels. In order to achieve this Annex I parties[22] are allocated a certain number of *Assigned Amount Units* for the 2008-2012 period. Each assigned amount unit represents a right to emit one tonne of carbon dioxide or equivalent. If parties exceed their allocated

[21] Ross Garnaut, *The Garnaut Climate Change Review* (2008).

[22] The UNFCCC creates 3 levels of membership. Annex I countries are those countries responsible fore creating a regulatory domestic framework aimed at controlling their emission output. These parties are Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, European Economic Community, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lichtenstein, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom of Britain and Northern Ireland and United States of America

assigned amount units, they can create additional assigned amount units by using one of the three flexibility mechanisms listed below:

- Article 17 creates **emission trading schemes**. These schemes allow countries with spare Assigned Amount Units to trade these units with countries who require additional Assigned Amount Units.
- Article 12 creates the **clean development mechanism**. This mechanism allows countries to implement emission reduction projects in developing countries. This is thought to provide dual benefits in reducing project costs for investing countries and allowing for the development of emission friendly practices in developing countries.
- Article 6 creates **joint implementation**. This mechanism allows Annex B countries (basically industrialised countries) to invest in projects in other Annex B countries. Again this is thought to provide flexibility in terms of the cost of the projects and the benefits of technology transfer.

Article 3 of the Kyoto Protocol defines the role of forests in climate change mitigation. Under Article 3 of the Protocol parties are able to take into account the effect of domestic forest activities within their emission calculations. This allows parties to meet their specified target of greenhouse gas reduction by including reductions that occur as a result of forestry activities. This therefore rewards parties that carry out practices to enhance the sustainable management of their forest areas. This section also requires that parties account for emission changes resulting from deforestation. Therefore, this section requires accounting of forest activities that act as sinks greenhouse gas emissions and accounting of forest activities that act as sources of greenhouse gas emissions.

The inclusion of forest activities within the Kyoto regime proved to be controversial due to concerns related to scale, permanence and additionality, leakage and double counting.[23]

- Scale: concern that forest projects cheaper to implement compared with clean/renewable energy projects;
- Permanence: scientific uncertainty surrounding the duration and level of carbon sequestered in forests, soils and other vegetation;
- Additionality: concept which ensures that credits are only given for practices which go above business as usual. Concern that forest credits would be created to reward parties who undertook no additional carbon reduction activities.
- Leakage: concern that improved forest activity in one area, may result in unsustainable practice taking place in another area.
- Double Counting: credits being sold to more then one purchaser.

As a result of these concerns the Land-Use, Land-Use Change and Forestry Guidelines were created along with special rules for forest clean development mechanism projects. The Land-Use, Land-Use Change and Forestry guidelines were created for States to use when accounting for the sink and source value of forest activities in their jurisdiction. The complicated nature of these rules means that most countries have decided to exclude agricultural practices (which include forestry practices) from domestic emission trading

[23] Ian Fry, 'Twists and Turns in the Jungle: Exploring the Evolution of Land Use, Land-Use Change and Forestry Decisions within the Kyoto Protocol' (2002) 11(2) *Review of European Community and International Environmental Law* 159

regimes. Therefore the sink/source value of forest practices is not included by countries when reporting to the convention.[24]

A number of special rules were introduced for forest clean development projects.[25] Certified emission reduction credits generated from afforesatation or reforestation activities are different from the other credits generated under the clean development mechanism. The most significant difference between clean development afforesatation and reforestation projects and energy- related clean development mechanism projects is the temporary nature of carbon storage in forest projects. In order to recognise the non-permanent nature of carbon storage in terrestrial carbon stocks, new categories of certified emission reduction credits were devised. Two categories of credits can be generated from afforesatation and reforestation activities:[26]

- Temporary certified emission reduction credits; and
- Long term certified emission reduction credits.

Temporary certified emission reduction credits have to be replaced every five years. Long-term certified emission reduction credits have a lifespan of 60 years, but still must be verified every five years. The non-permanence issues increase the transaction cost of afforesatation and reforestation credits. Temporary credits have to be replaced at the end of the five year life span. Depending on the market value of other available credits at the end of the credit's lifespan, this may work be financially unfeasible (because credit price may increase significantly in the future). This therefore acts as a disincentive against investing in sink credits under the clean development mechanism.

While the long-term credits have a more extended life span, they still need to replaced at the end of the lifespan. The longer life span may mean that, when the purchase of the replacement credits takes place, the price of the replacement credits is much more expensive. Additionally, the verification process every five years will also involve transaction costs. Comparatively, credits generated from energy activities do not suffer the permanence issues and, as such, may require higher up-front investment. However, overall they may be viewed as a more preferable way to meet emission reduction targets.

Reduced Emissions from Deforestation and Degradation

Forest activities under the Kyoto Protocol are restricted to afforesatation and reforestation. The purpose of an avoided deforestation mechanism is to provide incentives to developing countries to decrease the level of deforestation occurring at unsustainable levels. This mechanism would be prohibitive because it restricts the sovereign use of parties' land. In

[24] This allowed due to the existence of Article 3 (4) of the Kyoto Protocol. Article 3 (4) of the Protocol allows parties to opt in or opt out of its requirements. Under this article, Parties may include in their accounting practices greenhouse gas emission sources that occur as a result of land-use change and forestry categories and agricultural practices. Again within this section, Parties are required to account for source and sink emissions resulting from these practices. Therefore, it is voluntary for parties to report upon sink/source values of forest areas (due to the complexity associated with measuring and reporting, most parties have opted out of reporting upon this activities).

[25] For more information see Patrick Graichen, 'Can Forestry Gain from Emissions Trading? Rules Governing Sinks Projects Under the UNFCCC and the EU Emissions Trading System' (2005) 14 (1) *Review of the European Community and International Environmental Law* 11, and Greg Milner-White 'The Legal Implications of Climate Change in New Zealand for the Forestry Industry' (2007) 11 *New Zealand Journal of Environmental Law*, 141.

[26] Kenneth Rosenbaum, Dieter Schone, Ali Mekouar, 'Climate Change and the Forest Sector: Possible national and subnational legislation' (FAO Working Paper No 144, Food and Agriculture Organization of the United Nations, 2004) 17.

some instances, parties may have to improve the remaining forest estate and this will attract positive obligations of management. Designing a regulatory framework which rewards parties for not cutting down trees has involved consideration of a number of legal issues - with many of these issues remaining unresolved.

The inclusion of 'avoided deforestation' has remained unresolved due to the existence of party interests. Advocates for avoided deforestation base their argument around the significant contribution that deforestation plays in global emission levels (estimated to be around 10-25%)[27]. Parties in favour of avoided deforestation use these estimates to demonstrate the need for incentives to reward parties that decrease their level of deforestation. Opponents to the 'avoided deforestation' idea acknowledge the significant contribution that deforestation plays in global emissions levels but remain unconvinced that a sound scientific and regulatory framework can be created to deal with the complex nature of issues raised by 'avoided deforestation' negotiations. These issues include that of permanence, measurement, additionality, undermining the carbon market, sovereignty, and leakage.[28] In order to include avoided deforestation within existing Kyoto markets, the above six issues must be resolved.

As with all Kyoto forest negotiations the issue of permanence arises. In relation to avoided deforestation and degradation, permanence concerns are warranted.[29] This is because ensuring the existence of forest areas in perpetuity has proven to be challenging in developing countries. This is due to a wide range of factors related to the underlying causes of forest deforestation and degradation. Countries may over-estimate their ability to control deforestation, and history has indicated that deforestation is a complex problem to address. There are some means which can be used to account for non-permanence; these include various insurance options, renewal or temporary crediting, and banking carbon credits as a risk buffer.[30]

The concept of "leakage" perhaps presents the most formidable challenge for avoided deforestation regimes. Leakage occurs when mitigation actions in one area may result, directly or indirectly, in emission increases in another area.[31] In the avoided deforestation context, this is a real threat as deforestation may be displaced, and rewarding the initial avoided deforestation is pointless if the deforestation occurs in another location. Certain developing nations may prove to have superior capacity conditions for implementing Kyoto forest projects and, as such, deforestation activities may then be transferred to countries with weaker capacity - resulting in no net global gain in emission reductions.[32] Without adequate

[27] The Stern Review estimates 18%. See N. Stern, *Stern Review on the Economics of Climate Change* (2006) Office of Climate Change United Kingdom http://www.occ.gov.uk/activities/stern.htm at 26 November 2008.
[28] Ian Fry, 'Twists and Turns in the Jungle: Exploring the Evolution of Land Use, Land-Use Change and Forestry Decisions within the Kyoto Protocol' (2002) 11(2) *Review of European Community and International Environmental Law* 159, 161172. Also see *Review of the European Community and International Environmental Law* 166 and M Skutsch et al, 'Clearing the way for reducing emissions from tropical deforestation' (2007) 10 *Environmental Science and Policy* 322, 329-330.
[29] Ibid, 329.
[30] Ian Fry, 'Twists and Turns in the Jungle: Exploring the Evolution of Land Use, Land-Use Change and Forestry Decisions within the Kyoto Protocol' (2002) 11(2) *Review of European Community and International Environmental Law* 159, 161172.
[31] Ibid,, 173, and Martin Jung, 'The role of forestry projects in the clean development mechanism' (2005) 8 *Environmental Science and Policy* 87.
[32] P Combes Motel, R Pirard, and JL Combes, ' A methodology to estimate impacts of domestic policies on deforestation: Compensated Successful Efforts for "avoided deforestation" (REDD)' (2008) Ecological Economics (In Press)

safeguards within the international timber market requiring the provision of sustainability grown timber, global demand for wood products will contribute to leakage concerns.

Barriers preventing investment in forest compliance markets

Policy barriers arising from technical issues associated with recognising carbon credits in forest areas means that there has been very limited use of forest carbon credits within compliance markets. The following issues are preventing wider implementation of forest carbon credit investment:

- The complex nature of article 3 of the *Kyoto Protocol* and the associated *Land-Use, Land-Use Change and Forestry Guidelines* means that most domestic emission trading regimes have opted out of accounting for sink and source values of agricultural emissions. Future developments within the international regime may see the introduction of a requirement to account for sink and source value of agricultural emissions which would drive and increase in demand for carbon credits generated from forest activities.
- The temporary nature of forest credits generated under the Clean Development Mechanism acts as a major disincentive for investors. In order to increase investment in forest projects under the Clean Development Mechanism some type of incentive may need to be offered to investors.
- It is anticipated that the Reduced Emissions from Deforestation and Degradation (REDD) instrument will drive significant investment in forest conservation. The major barrier in this regard is the slow development of REDD policy.
- Compliance market policy is in state a flux. It is possible that significant policy change may occur after the first commitment period of the Kyoto Protocol finishes in 2012. This uncertainty may be leading to forest investments in voluntary markets in which policy requirements are not time specific.[33]
- Developing property rights in carbon credits remains the predominant issue from a legal perspective. Buyers of carbon credits want secured interests which are often achieved by recognising the carbon credit as a property interest. Many jurisdictions are still developing laws to recognise this.[34]

Voluntary Markets

Ecosystem marketplace defines voluntary carbon markets as all markets that trade in carbon offsets that are not required by regulation. Voluntary carbon markets can be broken into two distinct groups: the Chicago Climate Exchange (CCX) which is a voluntary but legally binding cap and trade system and the broader, non-binding 'over the counter offset market' (OTC). As outlined above issues surrounding permanence, leakage and additionality have increased the complexity of the compliance market approach to regulating forest carbon credits. As such, most forest carbon credits have been created in the voluntary market. The

[33] Kozlecka and Paulo, above n 2 , 4.

[34] For further information on this see Michelle Pasero, 'The Nature of the Rights of Interest Created by a Market for Forest Carbon' (2008) 3 *Carbon and Climate Law* Review 248, Charlotte Streck, 'Forests, Carbon Markets, and Avoided Deforestation: Legal Implications' (2008) 3 *Carbon and Climate Law Review* 239 and Peter Lough, Alastair Cameron, ' Forestry in the New Zealand Emissions Trading Scheme: Design and Prospects for Success' (2008) 3 *Carbon and Climate Law Review* 281 . In the African context Jon Unruh, 'Carbon sequestration in Africa: The land tenure problem' (2008) 18 *Global Environmental Change* 700

table below gives a breakdown of the volume of carbon sequestered by forest carbon credits and economic value of these credits in the compliance and voluntary frameworks.[35]

Table 1.1: Comparison of investment in forest carbon in compliance and voluntary markets

Market	**Volume Sequestered (MT Co2)**		**Economic Value (USD) $**	
	Historical Total	2008	Historical Total	2008
Compliance (Kyoto)	2.9	0.2	$11.6	$0.3
Voluntary (CCX and OTC)	17.9	5.0	$137.6	$36.8

This table demonstrates that in the forest context the operation of voluntary markets is far more significant in terms of providing funding for sustainable forest management. A range of forest management activities can be used to generate voluntary forest credits. A report complied by Ecosystem Marketplace found that the majority of credits related to afforesatation and reforestation activities (63%), followed by Reduced Emissions from Deforestation at 17% and Improved Forest Management projects at 13%. There is an increase in demand for Reduced Emissions from Deforestation and Degradation credits – historically 17% moving to 24% in 2008. This is likely attributable to greater carbon sequestration potential of these credits compared with the sequestration value of afforesatation/reforestation credits and improved forest management credits.

It is speculated that voluntary offset market has been popular due to the following factors:[36]

- Broad participation: the voluntary carbon market enables those in unregulated sectors or countries that not ratified Kyoto, such as the US, to offset their emissions;
- Preparation for future participation: the voluntary carbon market enables companies to gain experience with carbon inventories, emissions reduction and carbon markets.
- Innovation and Experimentation: the voluntary carbon market is not subject to the same level of oversight, management and regulation as the compliance market allowing project developers to be more flexible and implement projects that might otherwise not be viable (e.g. projects that are too small or too disaggregated).
- Corporate Goodwill: corporation can benefit from the positive public relations associated with the voluntary reduction of emissions.

Concerns have emerged concerning the quality of credits sold on voluntary carbon markets. Ecosystem marketplace acknowledges that proving the legitimacy of carbon offset projects

[35] Katherine Hamilton, Unna Chokkalingham and Maria Bendana, *State of the Forest Carbon Markets 2009: Taking Root and Branching Out*, Ecosystem Marketplace (2010), 2.
[36] Anja Kollmuss, Helge Zink and Clifford Polycarp, *Making Sense of the Voluntary Carbon Market: A comparison of Carbon Offset Standards*, World Wide Fund for Nature, Stockholm Environment Institute and TRICORONA, (2008).

remains a major issue in the marketplace for voluntary markets.[37] Scientists have raised questions about the legitimacy and permanence of certain credit generating activities.[38] In addition to this there is some evidence that there are not enough credits to satisfy demand which might encourage the actions of carbon cowboys. The term carbon cowboy has been used to refer firms which sell outright fraudulent credits resulting from nonexistent construction programs, project that provide little environmental benefits or projects which double-sell credits to more than one emitter. [39] The CCX has responded to such criticism by increasing regulatory auditing processes and the imposition of more stringent standards.[40] Despite these changes, very valid concern remains as the environmental and economic value of credits generated in voluntary carbon markets.

A report has been prepared comparing the verification processes of a number of voluntary carbon providers against the requirements of compliance market in particular the requirements of the Clean Development Mechanism.[41] All standards analysed are compatible with the requirements of the Clean Development Mechanism. Most standards have similar requirements to the Clean Development Mechanism there are degrees of variation in terms of the projects covered by the standards, the co-benefits required by the standard and the price generated by the standards.[42] The standards evaluated against the Clean Development Mechanism (CDM) are:

- Gold Standard;
- Voluntary Carbon Standard;
- VER+
- The Voluntary Offset Standard;
- Chicago Climate Exchange;
- The Climate, Community and Biodiversity Standards;
- Plan Vivo System;
- ISO 14064 -2
- GHG Protocol for Project Accounting

One of the standards assessed is the Voluntary Carbon Standard. This program seeks to verify that carbon offsets are real, additional, measurable, permanent and unique. The market share of the Voluntary Carbon Standard credits is expected to be large. In terms of assessing the creditability of the Voluntary Carbon Standard the following factors accord with CDM requirements: additionality requirements, third party verification requirements and the existence of a registry. While the Voluntary Carbon Standard does not have as stringent requirements as compared with the CDM for the following factors: separate verification and approval processes, the exclusion of projects types which high chances of adverse impacts and less requirements for projects with co-benefits to local communities.[43]

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[37] Katherine Hamilton et al, Fortifying the Foundation: State of the Voluntary Carbon Markets 2009, Ecosystems Marketplace, (2009), i.
[38] David Greising, 'The Carbon Frontier' (2008) 64 (3) Bulletin of Atomic Scientists 32, 33.
[39] Ibid, 34.
[40] Creation of a Gold standard for credits see Bill Eggertson, *'Mandatory or Voluntary'* (2008) July/August *Renewable Energy Focus*, 32.
[41] Anja Kollmuss, Helge Zink and Clifford Polycarp, *Making Sense of the Voluntary Carbon Market: A comparison of Carbon Offset Standards*, World Wide Fund for Nature, Stockholm Environment Institute and TRICORONA, (2008).
[42] Ibid, x.
[43] Ibid.

The Voluntary Carbon Standard has created an instrument providing guidance for agriculture, forestry and other land use projects. The instrument recognises four types of forest activities: afforestation, reforestation and revegetation (ARR); Agricultural Land Management (ALM), Improved Forest Management (IFM) and Reduced Emissions from Deforestation and Degradation (REDD). Verification of carbon forest credits by bodies such as the voluntary carbon market will help to overcome concerns about the validity of voluntary carbon credits. However, at this stage there are no mandatory provisions regarding verification of voluntary carbon forest credits which acts as a disincentive against complying with verifying body standards and guidelines.

Conclusions

Voluntary carbon markets demonstrate that there is a demand coupled with a willingness to pay for forest carbon credits. This is promising news for those interested in generating funds for forest conservation, reforestation, afforesatation and forest management projects. The development of accountable scientific methodologies to measure carbon storage capacity along with the development of the regulatory framework creating rules and standards must speed up in order to take advantage of this interest to invest in carbon credits. Some type of middle ground needs to be reached between compliance and voluntary systems in which the regulatory conditions imposed are not so onerous as to discourage investment, while they are stringent enough to ensure environmental and economic efficiency.

OPPORTUNITIES FOR FOREST FINANCE: COMPLIANCE AND VOLUNTARY MARKETS

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Scope of Paper

- Background on international compliance and voluntary carbon markets.
- Regulatory framework of underlying international compliance carbon markets.
- Barriers/ challenges facing compliance carbon markets.
- Nature of voluntary carbon markets.
- Concerns with voluntary carbon markets.
- Conclusions on the role and influence of compliance versus voluntary carbon markets.

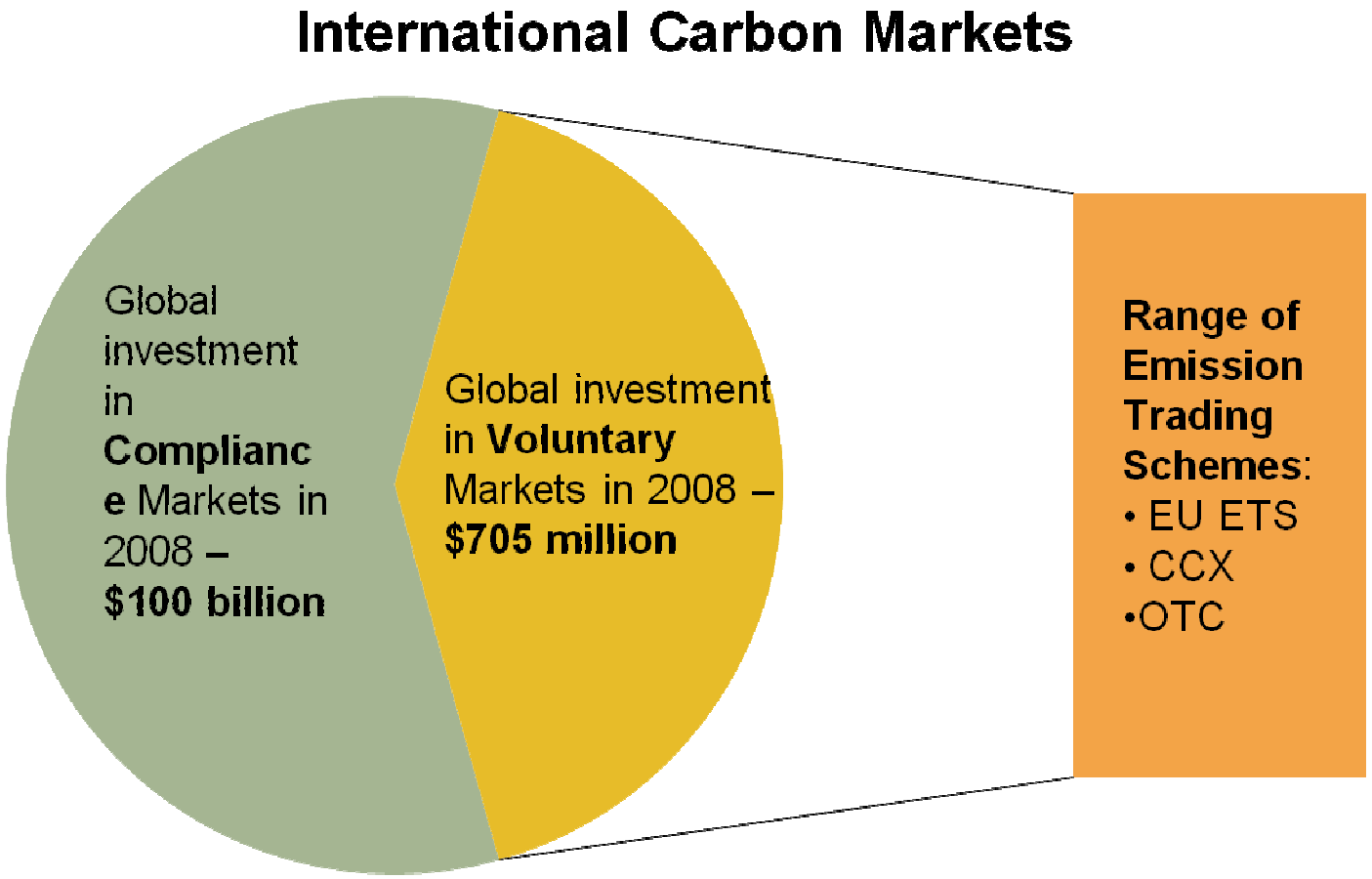
Two International Carbon Markets

Compliance Markets	Voluntary Markets
Markets Operating under Kyoto regulation.	Markets trading in offsets not required by regulation.

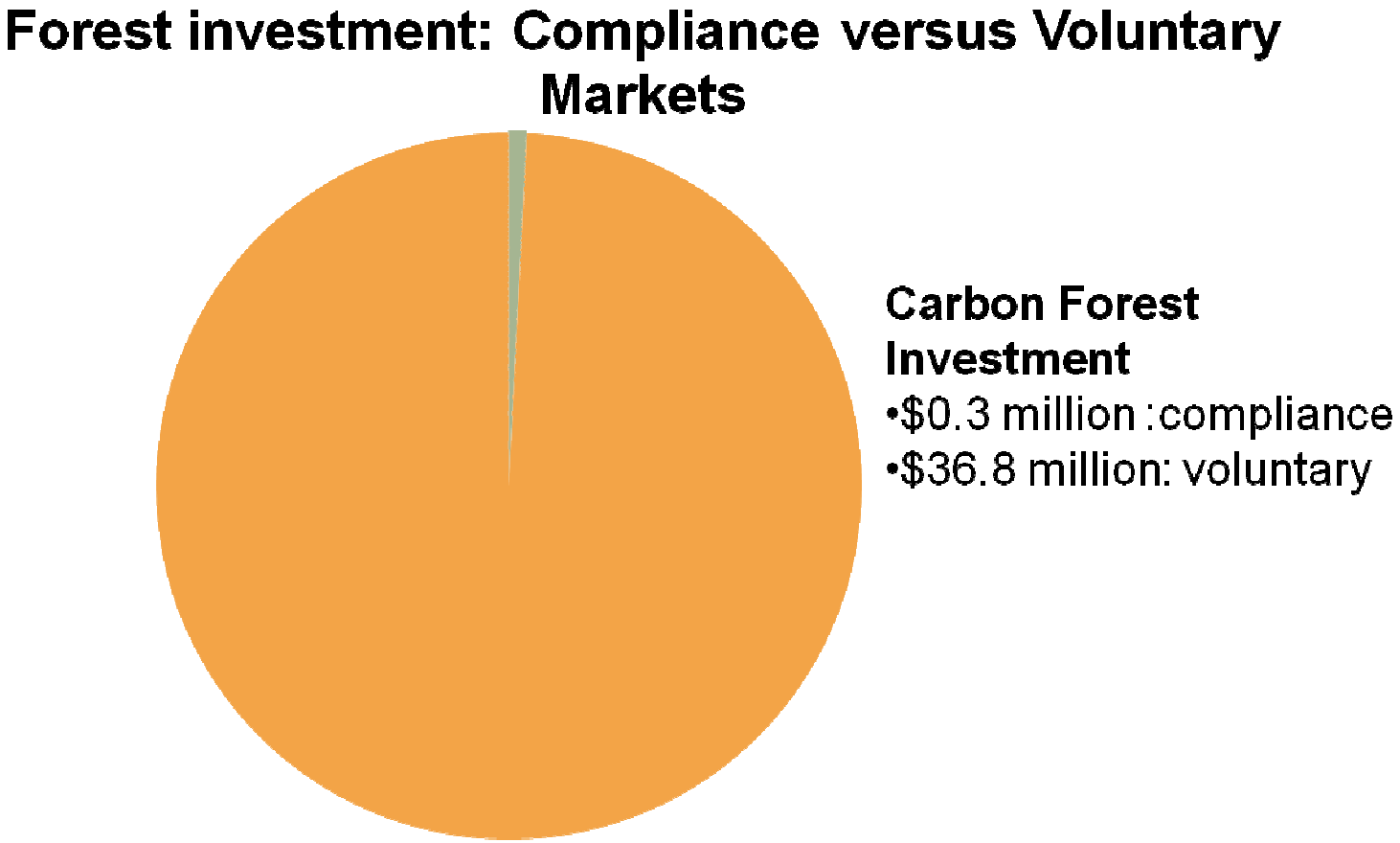
Role of International Carbon Markets

- Implementation of such projects has the potential to deliver ecological and social benefits while reducing global greenhouse gas emissions.
  - Methodology issues associated with forest carbon projects (e.g. permanence, additionality, leakage and legal recognition and enforcement);
  - Forest governance issues;
  - Conflicting interests between local communities and buyers of forest carbon credits.

Global Investment in Carbon Markets: Compliance versus Voluntary



Global investment in Forest Carbon Projects



Two Questions

1. Why do voluntary markets draw more investment in forest projects then compliance markets?
2. What are the challenges/barriers preventing increased investment in forest projects under compliance and voluntary markets?

Forest Regulation: Compliance Market Forest Policy

UNFCC	Kyoto Protocol	REDD
• Recognises carbon sink value of forests.	• CDM Guidelines. • LULUCFG	• Avoided deforestation policy.

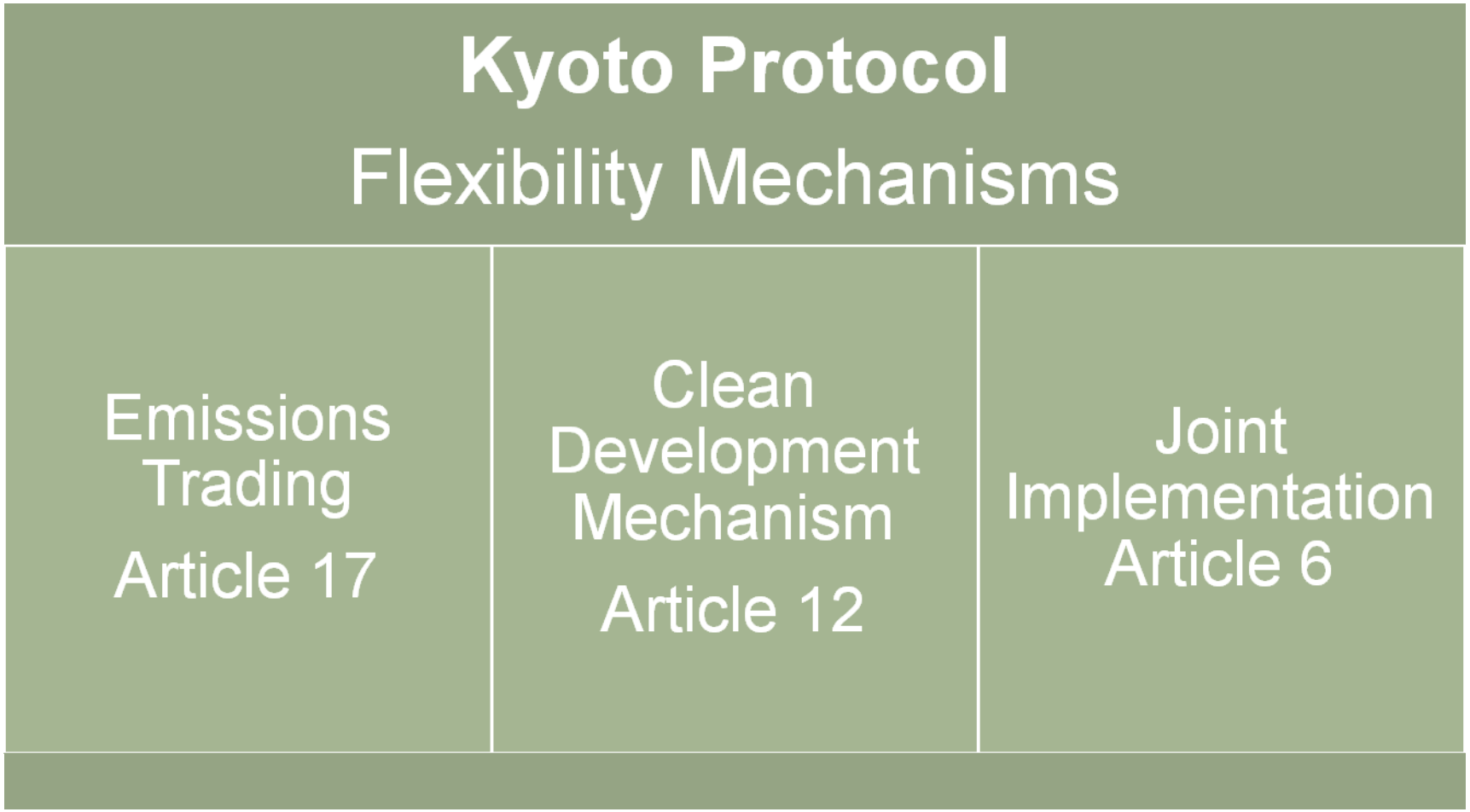
United Nations Framework Convention on Climate Change

- Does not place specific obligations on countries – sets out the foundational governance structure of international climate change regime.
- Forests not a focus of the instrument but touched in relation to
  - Article 4 – management of sinks of greenhouse gas emissions;
  - Article 4 (8) (c) – special recognition of the impact of climate change on developing countries with forest areas.

Kyoto Regulation

- Kyoto Protocol is the instrument which establishes international commitments – sets legally binding targets.
- First commitment period of Kyoto is 2008-2012.
- Overall goal is reduction of developed countries emissions by 5.2 % from 1990 levels.

Kyoto Regulation – drives carbon investment



Kyoto Regulation - Emissions trading Schemes and Forests

- **Article 3** of Kyoto Protocol defines the role of forests in climate change mitigation.
- Under this article parties can **opt in or opt out** of including forest carbon sink and forest carbon source values in domestic emission trading regimes.
- Most countries with emission trading schemes have **opted out** of accounting for domestic forest carbon sink and source values.
- Special rules for forest practices: Land-Use, Land-Use Change and Forestry Guidelines.

Kyoto regulation – CDM

- Clean Development Mechanism – allows countries to implement emission reduction projects in developing countries.
- Special rules for CDM forest projects.
- Most significant difference between CDM energy project and CDM forest projects is **temporary** nature of forest carbon credits.
  - Temporary certified emission reduction credits (5 years)
  - Long – term certified emission reduction credits (60 years)

Proposed REDD mechanism

- Reduced Emissions from Deforestation and Degradation.
- Will allow for investment in avoided deforestation activities within compliance market.
- REDD issues: permanence, leakage, local rights, forest governance and enforcement and recognition of forest carbon rights within domestic and international legal systems.

Barriers preventing investment in forest compliance markets

- **Opt in/ opt out** clause in Article 3 of Kyoto Protocol means that most countries have opted out of accounting for sink / source values of forest practices in domestic emission trading regimes.
- **Temporary nature** of credits generated by CDM forest projects acts as disincentive for international investment in forest projects.
- **Avoided deforestation policy** not currently in operation – this is being remedied by the development of REDD policy.

Barriers preventing investment in forest compliance markets

- Compliance market policy in state of flux. First commitment period of Kyoto ends in 2012, the nature of future policy not certain.
- General issues of foreign investment in forest projects:
  - Forest governance concerns;
  - Methodology concerns;
  - Competing interests: local versus investment interests.

Voluntary Markets

- Markets not required by regulation – entered into voluntarily by parties for range of reasons.
- Ecosystem Marketplace Report 2008 breakdown of forest carbon investment in voluntary markets:
  - 63% - afforestation and reforestation activities;
  - 17% - Reduced Emissions from Deforestation activities;
  - 13% - improved forest management activities.

Speculations on success of forest carbon voluntary markets

- Broad participation opportunities;
- Preparation for future participation;
- Innovation and experimentation
- Corporate Goodwill

Anja Kollmuss, Helge Zink and Clifford Polycarp, *Making Sense of the Voluntary Carbon Market: A comparison of Carbon Offset Standards*, World Wide Fund for Nature, Stockholm Environment Institute and TRICORONA, (2008)

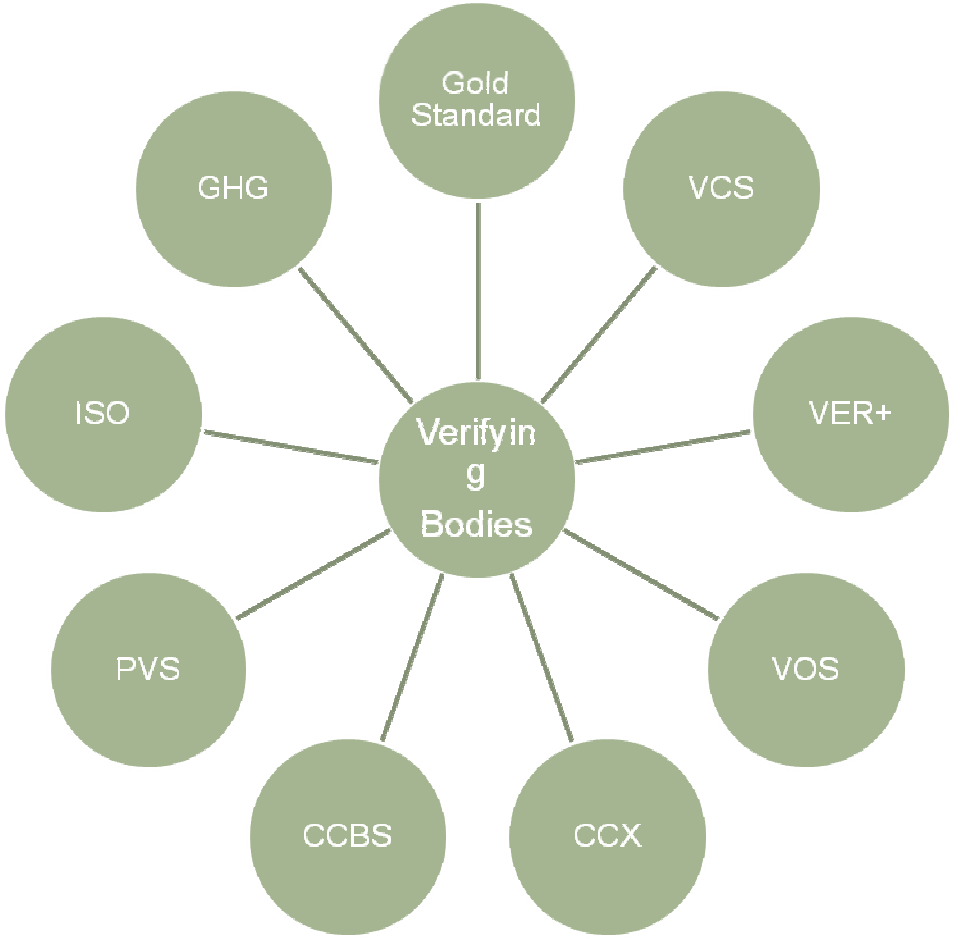
Concerns with voluntary carbon markets

- Ecosystem marketplace acknowledges that proving the legitimacy of carbon offset projects remains a major issue in the marketplace for voluntary markets.
- Concerns : legitimacy, permanence and demand for credits.
- “Carbon cowboys” – firms selling outright fraudulent credits resulting from nonexistent construction programs, programs that provide little environmental benefit or projects which double-sell credits to more than one emitter.

Response to Concerns

- Increased role for independent verification accreditation bodies.
- Bodies are responsible for ensuring the integrity and legitimacy of credits sold on voluntary markets.

Verification Bodies



Improving legitimacy of credits through verification

- Purchaser of carbon credits selects – type of market and type of carbon credit to buy.
- Market provider of carbon credit demonstrates the legitimacy of the carbon credit through the independent accreditation of its carbon credits.
- Requirements of accreditation body vary. Thus the social, economic and environmental legitimacy of carbon credits varies depending on the verifications bodies standards.

Conclusions

- Voluntary carbon forest markets demonstrate a demand and willingness to pay for forest carbon credits.
- Further research required to examine the term of voluntary carbon forest credits.
- Interaction between: compliance and voluntary markets.
- Find middle ground between regulatory conditions and legitimacy of credits.